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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,600	08/19/2003	Krishna Balachandran	29250-001064/US	2805
30596	7590	11/27/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O.BOX 8910 RESTON, VA 20195			AFSHAR, KAMRAN	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/642,600

Applicant(s)

BALACHANDRAN ET AL.

Examiner

Kamran Afshar, 571-272-7796

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-15 and 17-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 17 and 26 is/are rejected.
- 7) ☒ Claim(s) 18 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-5, 8-15 and 17-26 have been considered but are moot in view of the new ground(s) of rejection.

### ***Election/Restrictions***

2. In further review, Applicant's election without traverse of claims 1-18 and 25 in the reply filed on 06/21/2005 is acknowledged. Claims 19-24 are hereby canceled.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

3. In further review, the drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "classifying groups of users into tracking areas", "overhead message including an indicator value", "registration update message", "the user that is enabled or disabled based on the indicator value", "classifying non-overlapping sectors", "an adding criteria and a dropping criteria", etc., must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may

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be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 8-9, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaheen (U.S. Pub. No.: 2003/0232594 A1) in view of Kim (U.S. Pub. No.: 2006/0148487 A1).

With respect to claims 1, 11-12, 17, 25, Shaheen discloses a method of tracking (See e.g. tracking mechanism, Page 1, ¶ [0008]) a user in a communication network (See e.g. MBMS wireless system, Page 1, ¶ [0008]) supporting a broadcast-multicast service and / or each tracking area (inherently) containing one or more non-overlapping sectors, comprising: classifying groups of users (See e.g. wireless subscribers, multicast users identification number, etc. Page 1, ¶ [0008]) into tracking areas at the network (See e.g. S1 of Fig. 1, determines number of user within LA (Location Area) / RA (Routing Area) & group identification, Page 1, ¶ [0008]); transmitting an overhead message including an indicator value (See e.g. N> threshold, set flag, of Fig. 1, upon receiving an indication to activate the tracking mechanism, Page 1 ¶ [0011]) to at least one user of a group (See e.g. information sent by the system, Page 1, ¶ [0008]); and tracking movement of the at least one user of the group based on See e.g. invoking cell tracking mechanism, Page 1, ¶ [0008]) a tracking area update message received (See e.g. response message, Page 1, ¶ [0008], update message, location update, location information, etc. Page 1, ¶[0008]-[0010]) from the user that is enabled or disabled (See e.g. need to track, need not to track, of Fig.

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1) based on the indicator value and / or to update the location of the user (See e.g. Page 1, ¶¶[0008]-[0011]). However, Shaheen does not disclose registration update message. In an analogous field of endeavor, Kim discloses registration update message (See e.g. location registration/update message, Page 1, ¶[0016]). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching of Kim to Shaheen to provide a location registration message(s) as the mobile subscriber / mobile user, reaches the service area (such as roaming or handing off from a cell(s) (or sector) to another cell(s) (or sector(s) as suggested (See Kim Page 1, Page 1, ¶ [0016]).

Regarding claim 2, it is inherent classifying non-overlapping sectors into broadcast-multicast service tracking areas (See Shaheen, cell ID, Page 1, ¶ [0005]) each sector including one or more multicast groups of users (See e.g. wireless subscribers, multicast users identification number, etc., Page 1, ¶ [0008]).

Regarding claim 3, Shaheen discloses determining a change in tracking area for the at least one user based on one of an adding criteria and a dropping criteria (See e.g. Page 2, Lines 1-5 of ¶ [0012]).

Regarding claim 5, Shaheen discloses tracking the user based on information related to a tracking area change received from the user (See e.g. invocation of cell tracking is accomplished via several ways such as: the MBMS activation response message, Page 1, ¶ [0008]).

Regarding claim 8, it is obvious that tracking the user based (See Shaheen e.g. Page 1, ¶ [0008]) on a registration message received from the user subsequent to a detection of a tracking area change by the user (See e.g. location registration/update message, Page 1, ¶[0016]).

Regarding claim 9, it is inherent that non-overlapping tracking areas are defined and consist of one or more sectors in the network, and the tracking step further includes: the network transmitting information related to the tracking areas (See Shaheen e.g. Page 1, ¶ [0008]) of current and neighboring sectors (or neighbor cell / station); and the user responding to these transmission to enable tracking of the user by the network (See Shaheen e.g. cell by cell, Page 1, ¶ [0012]).

Regarding claim 10, it is inherent and / or obvious that the information related to tracking areas is included in system overhead transmitted to the one or more sectors (See Shaheen e.g. cell by cell, Page 1, ¶ [0012]).

Regarding claim 12, detecting a change in tracking area is based on a trigger (See Shaheen e.g.

6. Claims 4, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaheen (U.S. Pub. No.: 2003/0232594 A1) in view of Kim (U.S. Pub. No.: 2006/0148487 A1) further in view of Smith (U.S. Patent 7,054,297B1).

Regarding claim 4, Shaheen and Kim disclose everything as discussed above in the rejected claim 1. Further, Shaheen discloses that each tracking area includes one or more groups of sectors (See Shaheen, cell ID, Page 1, ¶ [0005]), each sector including one or more multicast groups of users (See Shaheen, e.g. wireless subscribers, multicast users identification number, etc., Page 1, ¶ [0008]). However, Shaheen and Kim did not disclose each the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold. In an analogous field of endeavor, Smith discloses each the adding criteria and dropping criteria includes (See e.g. Co. 6, Lines 56-64) comparing pilot signal strengths of sectors to at least one threshold (See e.g. Co. 7, Lines 7-14). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching Smith to Shaheen in view of Kim determining when to establish wireless links and provide wireless services as station/cell or sector(s) detecting its registration into multicast group and in response providing a multicast group service to the mobile user as moving in and out of an area serviced by station(s)/cell(s) and or sector(s) using any suitable criteria for adding and removing stations from multicast groups based on geographic location, load balancing, and/or any other suitable criteria as suggested (See Smith e.g. Co. 6, Lines 56-64).

Regarding claim 14, it is obvious that the trigger is based on a comparison of pilot signal strengths of one or more sectors of a tracking area to a given threshold (See Smith e.g. Co. 7, Lines 7-14).

Regarding claim 15, it is obvious that the trigger is based on pilot signal strengths of one or more sectors of a tracking area exceeding a given threshold or falling below a given threshold for a given period of time (See Smith e.g. Co. 7, Lines 7-14).

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7. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaheen (U.S. Pub. No.: 2003/0232594 A1) in view of Kim (U.S. Pub. No.: 2006/0148487 A1) further in view of Sayeedi (U.S. Pub. No.: 2003/0129980 A1).

Regarding claim 13, Shaheen and Kim disclose everything as discussed above in the rejected claim 11. However, Shaheen and Kim did not disclose the trigger is based on expiration of a given time interval to control rate at which registration messages are sent on the uplink. In an analogous field of endeavor, Sayeedi discloses the trigger is based on expiration of a given time interval to control rate at which registration messages (See e.g. registration message, registration request, etc. of Fig. 2, registration type: timer based, etc. Page 4, Line 10 of ¶ [0031] – Line 9 of ¶ [0032], Fig. 4B) on the uplink (See e.g. 158, 160, 162 of Fig. 1) Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching Sayeedi to Shaheen in view of Kim to facilitate registration into multicast group and in response providing a multicast group service using any suitable criteria based on geographic location (for example distanced based, zone based), load balancing, power based, time based and/or any other suitable criteria as suggested (See Sayeedi e.g. Fig. 4B).

***Allowable Subject Matter***

8. Claims 18, 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 18, the prior art of record fails to disclose singly or in combination or render obvious that wherein the determining step includes: after expiration of a given time interval, the user evaluating pilot strengths of M strongest sectors against a given criteria to determine a change in tracking area, and the network receiving the response based on a result of the evaluation, the response embodied as a tracking area update registration message from the user.

With respect to claim 26, the prior art of record fails to disclose singly or in combination or render obvious that wherein the transmitting step transmits an indicator value enabling registration update messages if the users are in a sector on a boundary between at least two tracking areas and transmits an

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indicator value disabling the tracking area registration update message if the users are not in a sector on the boundary or an uplink is overloaded.

**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Choi (U.S. Pub. No.: 2004/0180675 A1).

b) Park (U.S. 2004/0017809 A1).

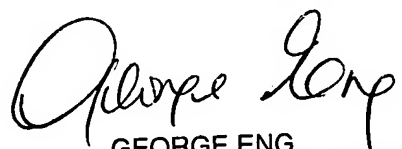
c) Tiedemann (U.S. Patent 5,588,043).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Eng, George** can be reached @ (571) 272-3984. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Kamran Afshar**

  
**GEORGE ENG**  
SUPERVISORY PATENT EXAMINER